



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,057	12/11/2003	Todd F. Bischoff	71745 CCD	2508

7590 09/28/2006

Christopher C. Dunham  
c/o Cooper & Dunham LLP  
1185 Ave of the Americas  
New York, NY 10036

EXAMINER

DANIELS, MATTHEW J

ART UNIT PAPER NUMBER

1732

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/735,057

Applicant(s)

BISCHOFF ET AL.

Examiner

Matthew J. Daniels

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3 July 2006 has been entered. All pending claims are original.

### *Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim rejections set forth previous under this section are withdrawn in favor of the following rejections. A second and alternative rejection of Claim 1 is set forth to address the additional specie claimed in Claims 2 and 4-6 (barium oxide, hydroxide).

3. **Claims 1-3** are rejected under 35 U.S.C. 103(a) as being obvious over Yamamoto (USPN 4690867) in view of Vayda (USPN 4762811) and Callis (USPN 2502418). Yamamoto teaches a method of making an unfired refractory component (7:53-64) comprising:

Art Unit: 1732

- a) forming a slurry comprising calcium silicate-containing refractory material (5:21-27)
- b) placing the slurry in a mold (6:4-22)
- d) hydrothermally processing the component to form a final product (6:23-36)

Yamamoto teaches calcium oxide in the form of lime, but appears to be silent to a slurry also comprising a barium- or strontium-containing compound and drying the slurry. However, Vayda teaches a barium sulfate powder (2:14) mixed with calcium silicate (1:68-2:1 and 2:60-68), and Callis teaches drying (4:24-34). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Vayda and Callis into that of Yamamoto in order to reduce the attack of aluminum on the lined melting furnaces and vessels (Vayda, 1:5-35) and to form a block into a rough shape having a desirable amount of water (Callis, 4:25-35). **As to Claims 2 and 3**, See Vayda's barium sulfate powder (2:14).

4. **Claims 1, 2, and 4-6** are rejected under 35 U.S.C. 103(a) as being obvious over Yamamoto (USPN 4690867) in view of Prior, Jr. (USPN 6407023) and Callis (USPN 2502418). Yamamoto teaches a method of making an unfired refractory component (7:53-64) comprising:
- a) forming a slurry comprising calcium silicate-containing refractory material (5:21-27)
  - b) placing the slurry in a mold (6:4-22)
  - d) hydrothermally processing the component to form a final product (6:23-36)

Yamamoto teaches calcium oxide in the form of lime, but appears to be silent to a slurry also comprising a barium- or strontium-containing compound and drying the slurry. However, Prior teaches a barium compound (3:15-20) mixed with calcium silicate (Kaolin clay, 5:55 and

Art Unit: 1732

3:10-13), and Callis teaches drying (4:24-34). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Prior, Jr. and Callis into that of Yamamoto in order to produce a reaction with free silica to form an impervious glass structure that resists wetting and reaction with molten aluminum (Prior, Jr., 14:12-35) and to form a block into a rough shape having a desirable amount of water (Callis, 4:25-35). **As to Claim 2**, see barium oxide and hydroxide (14:16). **As to Claims 4-6**, Callis teaches forming an aqueous solution of barium hydroxide (1:37-44 and 2:29-55) wherein the addition of the barium compound to water to produce the aqueous solution produces a temperature of at least 30 C (2:29-35) and at least 40 C (2:29-35).

#### ***Response to Arguments***

5. Applicant's arguments filed 3 July 2006 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

- a) The method requires both calcium oxide and barium oxide. Mere substitution is not what is being claimed.
- b) There is no motivation.
- c) Callis does not teach that the oxides are equivalent in all processes.
- d) There is no teaching of the art-recognized equivalency of oxides of calcium, barium, and strontium for Applicant's intended use.
- e) Test results are provided to support the conclusion that a barium or strontium containing compound is superior to calcium.

Art Unit: 1732

6. These arguments are not persuasive for the following reasons:

**a-e)** The Applicant's arguments have been considered, but are believed to be moot in view of the new rejections above. For example, Vayda teaches barium sulphate incorporated with calcium silicate (Note that Applicant's argument above drawn to calcium oxide is not commensurate with the silicate of Claim 1) specifically for the same purpose, and achieving the same result, as this application.

Additionally, Applicant's arguments clearly appear to be drawn to the composition. This is not what is claimed, and it is unclear how the process of making an unfired refractory component is different from that of Yamamoto alone with the exception of the particular composition used. However, it has been held that an old method is not patentable again, even if a new product is made, and additionally that use of a different starting material in an old process is not patentable. See *In re Durden, Jr., et al*, 226 USPQ 359. Additionally, as the references cited above show, the use of barium additives in silicate hydraulic cements to protect the refractory against molten aluminum attack is known.

Applicant's remarks to Callis are noted, but Callis is relied upon only for certain aspects of the mixing, and the teachings of Callis are still believed to be valid and combinable for those aspects relied upon.

The declaration has been considered, but is not persuasive in view of the references above which recite similar benefits as those declared in the Applicant's evidence. Thus, no unexpectedness of these results has been shown.

Art Unit: 1732

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 9/22/06



  
CHRISTINA JOHNSON  
PRIMARY EXAMINER  
9/25/06